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Analysis Report

REVISED

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

Stantec
1060 Andrew Drive
Suite 140
West Chester PA 19380

Report Date: April 11, 2017

Project: Amtrak Wilmington

Submittal Date: 10/09/2015
Group Number: 1600078
SDG: ATA44
PO Number: 213402048
State of Sample Origin: DE

Client Sample Description	Lancaster Labs (LL) #
Product-10082015 Grab Oil	8085395

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/ . To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To	Stantec	Attn: Paul Miller
Electronic Copy To	Stantec	Attn: Steve Baggett

Respectfully Submitted,

Amek Carter
Specialist

(717) 556-7252

REVISED

Sample Description: Product-10082015 Grab Oil
Amtrak Wilmington

LL Sample # G5 8085395
LL Group # 1600078
Account # 11289

Project Name: Amtrak Wilmington

Collected: 10/08/2015 09:40 by JZ

Submitted: 10/09/2015 17:56
Reported: 04/11/2017 16:45

Stantec
1060 Andrew Drive
Suite 140
West Chester PA 19380

PRD10 SDG#: ATA44-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10237	Acetone	67-64-1	< 100,000	100,000	5000
10237	Benzene	71-43-2	< 25,000	25,000	5000
10237	Bromodichloromethane	75-27-4	< 25,000	25,000	5000
10237	Bromoform	75-25-2	< 25,000	25,000	5000
10237	Bromomethane	74-83-9	< 25,000	25,000	5000
10237	2-Butanone	78-93-3	< 50,000	50,000	5000
10237	Carbon Disulfide	75-15-0	< 25,000	25,000	5000
10237	Carbon Tetrachloride	56-23-5	< 25,000	25,000	5000
10237	Chlorobenzene	108-90-7	< 25,000	25,000	5000
10237	Chloroethane	75-00-3	< 25,000	25,000	5000
10237	Chloroform	67-66-3	< 25,000	25,000	5000
10237	Chloromethane	74-87-3	< 25,000	25,000	5000
10237	Dibromochloromethane	124-48-1	< 25,000	25,000	5000
10237	1,1-Dichloroethane	75-34-3	< 25,000	25,000	5000
10237	1,2-Dichloroethane	107-06-2	< 25,000	25,000	5000
10237	1,1-Dichloroethene	75-35-4	< 25,000	25,000	5000
10237	cis-1,2-Dichloroethene	156-59-2	< 25,000	25,000	5000
10237	trans-1,2-Dichloroethene	156-60-5	< 25,000	25,000	5000
10237	1,2-Dichloropropane	78-87-5	< 25,000	25,000	5000
10237	cis-1,3-Dichloropropene	10061-01-5	< 25,000	25,000	5000
10237	trans-1,3-Dichloropropene	10061-02-6	< 25,000	25,000	5000
10237	Ethylbenzene	100-41-4	< 25,000	25,000	5000
10237	2-Hexanone	591-78-6	< 50,000	50,000	5000
10237	4-Methyl-2-pentanone	108-10-1	< 50,000	50,000	5000
10237	Methylene Chloride	75-09-2	< 25,000	25,000	5000
10237	Styrene	100-42-5	< 25,000	25,000	5000
10237	1,1,2,2-Tetrachloroethane	79-34-5	< 25,000	25,000	5000
10237	Tetrachloroethene	127-18-4	< 25,000	25,000	5000
10237	Toluene	108-88-3	< 25,000	25,000	5000
10237	1,1,1-Trichloroethane	71-55-6	< 25,000	25,000	5000
10237	1,1,2-Trichloroethane	79-00-5	< 25,000	25,000	5000
10237	Trichloroethene	79-01-6	< 25,000	25,000	5000
10237	Vinyl Chloride	75-01-4	< 25,000	25,000	5000
10237	Xylene (Total)	1330-20-7	< 25,000	25,000	5000

Reporting limits were raised due to interference from the sample matrix.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	230,000	5,100	1
10727	Acenaphthylene	208-96-8	< 5,100	5,100	1
10727	Anthracene	120-12-7	150,000	5,100	1
10727	Benzo(a)anthracene	56-55-3	9,600	5,100	1
10727	Benzo(a)pyrene	50-32-8	< 5,100	5,100	1
10727	Benzo(b)fluoranthene	205-99-2	6,700	5,100	1
10727	Benzo(g,h,i)perylene	191-24-2	< 5,100	5,100	1
10727	Benzo(k)fluoranthene	207-08-9	< 5,100	5,100	1
10727	4-Bromophenyl-phenylether	101-55-3	< 10,000	10,000	1
10727	Butylbenzylphthalate	85-68-7	< 50,000	50,000	1
10727	Di-n-butylphthalate	84-74-2	< 50,000	50,000	1
10727	Carbazole	86-74-8	< 10,000	10,000	1
10727	4-Chloro-3-methylphenol	59-50-7	< 10,000	10,000	1

REVISED

Sample Description: Product-10082015 Grab Oil
Amtrak Wilmington

LL Sample # G5 8085395
LL Group # 1600078
Account # 11289

Project Name: Amtrak Wilmington

Collected: 10/08/2015 09:40 by JZ

Submitted: 10/09/2015 17:56
Reported: 04/11/2017 16:45

Stantec
1060 Andrew Drive
Suite 140
West Chester PA 19380

PRD10 SDG#: ATA44-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**	**ug/kg**	
10727	4-Chloroaniline	106-47-8	< 20,000	20,000	1
10727	bis(2-Chloroethoxy)methane	111-91-1	< 10,000	10,000	1
10727	bis(2-Chloroethyl)ether	111-44-4	< 10,000	10,000	1
10727	2-Chloronaphthalene	91-58-7	< 9,900	9,900	1
10727	2-Chlorophenol	95-57-8	< 10,000	10,000	1
10727	4-Chlorophenyl-phenylether	7005-72-3	< 10,000	10,000	1
10727	2,2'-oxybis(1-Chloropropane)	108-60-1	< 10,000	10,000	1
	Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.				
10727	Chrysene	218-01-9	17,000	5,100	1
10727	Dibenz(a,h)anthracene	53-70-3	< 5,100	5,100	1
10727	Dibenzofuran	132-64-9	180,000	10,000	1
10727	1,2-Dichlorobenzene	95-50-1	< 10,000	10,000	1
10727	1,3-Dichlorobenzene	541-73-1	< 10,000	10,000	1
10727	1,4-Dichlorobenzene	106-46-7	< 10,000	10,000	1
10727	3,3'-Dichlorobenzidine	91-94-1	< 100,000	100,000	1
10727	2,4-Dichlorophenol	120-83-2	< 10,000	10,000	1
10727	Diethylphthalate	84-66-2	< 50,000	50,000	1
10727	2,4-Dimethylphenol	105-67-9	< 10,000	10,000	1
10727	Dimethylphthalate	131-11-3	< 50,000	50,000	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	< 150,000	150,000	1
10727	2,4-Dinitrophenol	51-28-5	< 300,000	300,000	1
10727	2,4-Dinitrotoluene	121-14-2	< 50,000	50,000	1
10727	2,6-Dinitrotoluene	606-20-2	< 10,000	10,000	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79,000	51,000	1
10727	Fluoranthene	206-44-0	53,000	5,100	1
10727	Fluorene	86-73-7	470,000	5,100	1
10727	Hexachlorobenzene	118-74-1	< 5,100	5,100	1
10727	Hexachlorobutadiene	87-68-3	< 10,000	10,000	1
10727	Hexachlorocyclopentadiene	77-47-4	< 150,000	150,000	1
10727	Hexachloroethane	67-72-1	< 50,000	50,000	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	< 5,100	5,100	1
10727	Isophorone	78-59-1	< 10,000	10,000	1
10727	2-Methylnaphthalene	91-57-6	260,000	5,100	1
10727	2-Methylphenol	95-48-7	< 10,000	10,000	1
10727	4-Methylphenol	106-44-5	< 10,000	10,000	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	Naphthalene	91-20-3	< 5,100	5,100	1
10727	2-Nitroaniline	88-74-4	< 10,000	10,000	1
10727	3-Nitroaniline	99-09-2	< 50,000	50,000	1
10727	4-Nitroaniline	100-01-6	< 50,000	50,000	1
10727	Nitrobenzene	98-95-3	< 10,000	10,000	1
10727	2-Nitrophenol	88-75-5	< 10,000	10,000	1
10727	4-Nitrophenol	100-02-7	< 150,000	150,000	1
10727	N-Nitroso-di-n-propylamine	621-64-7	< 10,000	10,000	1
10727	N-Nitrosodiphenylamine	86-30-6	< 10,000	10,000	1

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Sample Description: Product-10082015 Grab Oil
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LL Sample # G5 8085395
LL Group # 1600078
Account # 11289

Project Name: Amtrak Wilmington

Collected: 10/08/2015 09:40 by JZ

Submitted: 10/09/2015 17:56
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Stantec
1060 Andrew Drive
Suite 140
West Chester PA 19380

PRD10 SDG#: ATA44-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	< 50,000	50,000	1
10727	Pentachlorophenol	87-86-5	< 51,000	51,000	1
10727	Phenanthrene	85-01-8	930,000	5,100	1
10727	Phenol	108-95-2	< 10,000	10,000	1
10727	Pyrene	129-00-0	100,000	5,100	1
10727	1,2,4-Trichlorobenzene	120-82-1	< 10,000	10,000	1
10727	2,4,5-Trichlorophenol	95-95-4	< 10,000	10,000	1
10727	2,4,6-Trichlorophenol	88-06-2	< 10,000	10,000	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: Pentachlorophenol				
	Reporting limits were raised due to interference from the sample matrix.				
Pesticides/PCBs	**SW-846 8082**		**ug/kg**	**ug/kg**	
00174	PCB-1016	12674-11-2	< 2,500	2,500	1
00174	PCB-1221	11104-28-2	< 2,500	2,500	1
00174	PCB-1232	11141-16-5	< 2,500	2,500	1
00174	PCB-1242	53469-21-9	< 2,500	2,500	1
00174	PCB-1248	12672-29-6	< 2,500	2,500	1
00174	PCB-1254	11097-69-1	< 2,500	2,500	1
00174	PCB-1260	11096-82-5	5,400	2,500	1
GC Petroleum Hydrocarbons	**SW-846 8015B modified**		**see below**	**see below**	
02535	Quantitative GC Fingerprint	n.a.	< 100	100	100
	The GC fingerprint for this sample is most similar to our Diesel/#2 Fuel oil reference standard. Differences in relative peak intensities and ratios indicate that the product in this sample is weathered. The degree of weathering is beyond the scope of this analysis. When we calculate total sample area in the C8-C40 normal hydrocarbon range as petroleum distillate, it is present at 75% by weight.				

Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10237	TCL by 8260 (soil)	SW-846 8260B	1	Q152941AA	10/21/2015 11:28	Anita M Dale	5000

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Sample Description: Product-10082015 Grab Oil
Amtrak Wilmington

LL Sample # G5 8085395
LL Group # 1600078
Account # 11289

Project Name: Amtrak Wilmington

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PRD10 SDG#: ATA44-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00373	DP 21 Bulk Prep of Oil Samples	SW-846 5030B	1	Q152941AA	10/15/2015 11:20	Anita M Dale	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	15295SLH026	10/24/2015 19:38	William H Saadeh	1
10809	BNA Soil Microwave	SW-846 3546	1	15295SLH026	10/23/2015 14:10	Denise L Trimby	1
00174	PCBs in Oil	SW-846 8082	1	152900030A	10/20/2015 20:19	Richard A Shober	1
00815	Oil Sample PCB's Cleanup Ext.	SW-846 3580A	1	152900030A	10/20/2015 00:30	Sally L Appleyard	1
02535	Quantitative GC Fingerprint	SW-846 8015B modified	1	152920017A	10/20/2015 01:58	Heather E Williams	100

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Quality Control Summary

Client Name: Stantec
Reported: 04/11/2017 16:45

Group Number: 1600078

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/kg	ug/kg
Batch number: Q152941AA	Sample number(s): 8085395	
Acetone	< 10,000	10,000
Benzene	< 2,500	2,500
Bromodichloromethane	< 2,500	2,500
Bromoform	< 2,500	2,500
Bromomethane	< 2,500	2,500
2-Butanone	< 5,000	5,000
Carbon Disulfide	< 2,500	2,500
Carbon Tetrachloride	< 2,500	2,500
Chlorobenzene	< 2,500	2,500
Chloroethane	< 2,500	2,500
Chloroform	< 2,500	2,500
Chloromethane	< 2,500	2,500
Dibromochloromethane	< 2,500	2,500
1,1-Dichloroethane	< 2,500	2,500
1,2-Dichloroethane	< 2,500	2,500
1,1-Dichloroethene	< 2,500	2,500
cis-1,2-Dichloroethene	< 2,500	2,500
trans-1,2-Dichloroethene	< 2,500	2,500
1,2-Dichloropropane	< 2,500	2,500
cis-1,3-Dichloropropene	< 2,500	2,500
trans-1,3-Dichloropropene	< 2,500	2,500
Ethylbenzene	< 2,500	2,500
2-Hexanone	< 5,000	5,000
4-Methyl-2-pentanone	< 5,000	5,000
Methylene Chloride	< 2,500	2,500
Styrene	< 2,500	2,500
1,1,2,2-Tetrachloroethane	< 2,500	2,500
Tetrachloroethene	< 2,500	2,500
Toluene	< 2,500	2,500
1,1,1-Trichloroethane	< 2,500	2,500
1,1,2-Trichloroethane	< 2,500	2,500
Trichloroethene	< 2,500	2,500
Vinyl Chloride	< 2,500	2,500
Xylene (Total)	< 2,500	2,500
Batch number: 15295SLH026	Sample number(s): 8085395	
Acenaphthene	< 5,100	5,100
Acenaphthylene	< 5,100	5,100
Anthracene	< 5,100	5,100
Benzo(a)anthracene	< 5,100	5,100
Benzo(a)pyrene	< 5,100	5,100

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: Stantec
Reported: 04/11/2017 16:45

Group Number: 1600078

Method Blank (continued)

Analysis Name	Result	LOQ
	ug/kg	ug/kg
Benzo(b)fluoranthene	< 5,100	5,100
Benzo(g,h,i)perylene	< 5,100	5,100
Benzo(k)fluoranthene	< 5,100	5,100
4-Bromophenyl-phenylether	< 10,000	10,000
Butylbenzylphthalate	< 50,000	50,000
Di-n-butylphthalate	< 50,000	50,000
Carbazole	< 10,000	10,000
4-Chloro-3-methylphenol	< 10,000	10,000
4-Chloroaniline	< 20,000	20,000
bis(2-Chloroethoxy)methane	< 10,000	10,000
bis(2-Chloroethyl)ether	< 10,000	10,000
2-Chloronaphthalene	< 9,900	9,900
2-Chlorophenol	< 10,000	10,000
4-Chlorophenyl-phenylether	< 10,000	10,000
2,2'-oxybis(1-Chloropropane)	< 10,000	10,000
Chrysene	< 5,100	5,100
Dibenz(a,h)anthracene	< 5,100	5,100
Dibenzofuran	< 10,000	10,000
1,2-Dichlorobenzene	< 10,000	10,000
1,3-Dichlorobenzene	< 10,000	10,000
1,4-Dichlorobenzene	< 10,000	10,000
3,3'-Dichlorobenzidine	< 100,000	100,000
2,4-Dichlorophenol	< 10,000	10,000
Diethylphthalate	< 50,000	50,000
2,4-Dimethylphenol	< 10,000	10,000
Dimethylphthalate	< 50,000	50,000
4,6-Dinitro-2-methylphenol	< 150,000	150,000
2,4-Dinitrophenol	< 300,000	300,000
2,4-Dinitrotoluene	< 50,000	50,000
2,6-Dinitrotoluene	< 10,000	10,000
bis(2-Ethylhexyl)phthalate	< 51,000	51,000
Fluoranthene	< 5,100	5,100
Fluorene	< 5,100	5,100
Hexachlorobenzene	< 5,100	5,100
Hexachlorobutadiene	< 10,000	10,000
Hexachlorocyclopentadiene	< 150,000	150,000
Hexachloroethane	< 50,000	50,000
Indeno(1,2,3-cd)pyrene	< 5,100	5,100
Isophorone	< 10,000	10,000
2-Methylnaphthalene	< 5,100	5,100
2-Methylphenol	< 10,000	10,000
4-Methylphenol	< 10,000	10,000
Naphthalene	< 5,100	5,100
2-Nitroaniline	< 10,000	10,000
3-Nitroaniline	< 50,000	50,000
4-Nitroaniline	< 50,000	50,000
Nitrobenzene	< 10,000	10,000
2-Nitrophenol	< 10,000	10,000
4-Nitrophenol	< 150,000	150,000

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.
P###### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

REVISED

Quality Control Summary

Client Name: Stantec
Reported: 04/11/2017 16:45

Group Number: 1600078

Method Blank (continued)

Analysis Name	Result ug/kg	LOQ ug/kg
N-Nitroso-di-n-propylamine	< 10,000	10,000
N-Nitrosodiphenylamine	< 10,000	10,000
Di-n-octylphthalate	< 50,000	50,000
Pentachlorophenol	< 51,000	51,000
Phenanthrene	< 5,100	5,100
Phenol	< 10,000	10,000
Pyrene	< 5,100	5,100
1,2,4-Trichlorobenzene	< 10,000	10,000
2,4,5-Trichlorophenol	< 10,000	10,000
2,4,6-Trichlorophenol	< 10,000	10,000
Batch number: 152900030A	Sample number(s): 8085395	
PCB-1016	< 2,500	2,500
PCB-1221	< 2,500	2,500
PCB-1232	< 2,500	2,500
PCB-1242	< 2,500	2,500
PCB-1248	< 2,500	2,500
PCB-1254	< 2,500	2,500
PCB-1260	< 2,500	2,500

LCS/LCSD

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Q152941AA	Sample number(s): 8085395								
Acetone	75000	73488.58	75000	71600.33	98	95	46-139	3	30
Benzene	10000	9538.29	10000	9475.22	95	95	80-120	1	30
Bromodichloromethane	10000	8492.63	10000	8586.67	85	86	75-120	1	30
Bromoform	10000	8284.57	10000	8141.49	83	81	64-120	2	30
Bromomethane	10000	16941.61	10000	16975.27	169	170	21-192	0	30
2-Butanone	75000	70796.99	75000	71039.27	94	95	54-129	0	30
Carbon Disulfide	10000	7649.07	10000	7709.72	76	77	60-120	1	30
Carbon Tetrachloride	10000	8631.65	10000	8754.13	86	88	69-130	1	30
Chlorobenzene	10000	9013.64	10000	8996.81	90	90	80-120	0	30
Chloroethane	10000	18694.78	10000	18144.46	187*	181	21-185	3	30
Chloroform	10000	9498.12	10000	9628.98	95	96	80-120	1	30
Chloromethane	10000	7690.33	10000	7581.55	77	76	56-120	1	30
Dibromochloromethane	10000	8801.21	10000	8560.03	88	86	77-120	3	30
1,1-Dichloroethane	10000	9504.9	10000	9532.3	95	95	77-120	0	30
1,2-Dichloroethane	10000	10159.97	10000	10052.59	102	101	77-130	1	30
1,1-Dichloroethene	10000	9439.33	10000	9428.3	94	94	73-129	0	30
cis-1,2-Dichloroethene	10000	9549.29	10000	9170.84	95	92	80-120	4	30
trans-1,2-Dichloroethene	10000	9795.86	10000	9750.04	98	98	79-122	0	30
1,2-Dichloropropane	10000	9347.15	10000	9560.05	93	96	76-120	2	30
cis-1,3-Dichloropropene	10000	9074.96	10000	9141.09	91	91	74-120	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
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REVISED

Quality Control Summary

Client Name: Stantec
Reported: 04/11/2017 16:45

Group Number: 1600078

LCS/LCSD (continued)

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/kg	ug/kg	ug/kg	ug/kg					
trans-1,3-Dichloropropene	10000	9602.53	10000	9416.27	96	94	76-120	2	30
Ethylbenzene	10000	8584.61	10000	8572.71	86	86	80-120	0	30
2-Hexanone	50000	32574.89	50000	32037.91	65	64	47-133	2	30
4-Methyl-2-pentanone	50000	36930.03	50000	38482.12	74	77	57-123	4	30
Methylene Chloride	10000	9770.5	10000	9511.79	98	95	76-122	3	30
Styrene	10000	8368.73	10000	8365.8	84	84	76-120	0	30
1,1,2,2-Tetrachloroethane	10000	9491.32	10000	9723.33	95	97	67-121	2	30
Tetrachloroethene	10000	8788.7	10000	8858.75	88	89	78-120	1	30
Toluene	10000	9334.49	10000	9043.27	93	90	80-120	3	30
1,1,1-Trichloroethane	10000	9071.69	10000	9165.82	91	92	59-136	1	30
1,1,2-Trichloroethane	10000	9606.86	10000	9361.05	96	94	80-120	3	30
Trichloroethene	10000	9367.32	10000	9363.31	94	94	80-120	0	30
Vinyl Chloride	10000	9509.69	10000	7833.56	95	78	59-120	19	30
Xylene (Total)	30000	25922.07	30000	25587.05	86	85	80-120	1	30
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 15295SLH026	Sample number(s): 8085395								
Acenaphthene	100000	100605.6	100000	108584.7	101	109	83-116	8	30
Acenaphthylene	100000	101926.7	100000	110697.3	102	111	83-127	8	30
Anthracene	100000	101231.4	100000	108312.1	101	108	82-118	7	30
Benzo(a)anthracene	100000	93180.1	100000	97550.5	93	98	76-119	5	30
Benzo(a)pyrene	100000	94914.2	100000	103806.2	95	104	85-117	9	30
Benzo(b)fluoranthene	100000	99885.4	100000	104375	100	104	78-129	4	30
Benzo(g,h,i)perylene	100000	95753.7	100000	94101	96	94	82-119	2	30
Benzo(k)fluoranthene	100000	102184.9	100000	108429.7	102	108	79-120	6	30
4-Bromophenyl-phenylether	100000	98485.7	100000	106316.4	98	106	84-120	8	30
Butylbenzylphthalate	100000	97289.3	100000	104291.8	97	104	80-118	7	30
Di-n-butylphthalate	100000	102044.1	100000	105431.3	102	105	84-120	3	30
Carbazole	100000	98418.9	100000	104914	98	105	78-117	6	30
4-Chloro-3-methylphenol	100000	95390.7	100000	99652.7	95	100	79-127	4	30
4-Chloroaniline	100000	49082.3	100000	45831.9	49	46	10-103	7	30
bis(2-Chloroethoxy)methane	100000	92238.1	100000	98216.9	92	98	77-116	6	30
bis(2-Chloroethyl)ether	100000	96598.2	100000	101296.1	97	101	77-115	5	30
2-Chloronaphthalene	100000	92329.5	100000	101061.1	92	101	63-146	9	30
2-Chlorophenol	100000	100780.3	100000	105918.4	101	106	85-123	5	30
4-Chlorophenyl-phenylether	100000	97057.9	100000	104869.5	97	105	81-120	8	30
2,2'-oxybis(1-Chloropropane)	100000	85855.4	100000	89841.4	86	90	63-126	5	30
Chrysene	100000	98057.3	100000	103181.7	98	103	80-121	5	30
Dibenz(a,h)anthracene	100000	98679.4	100000	96940.6	99	97	81-123	2	30
Dibenzofuran	100000	97693.1	100000	105015.8	98	105	85-115	7	30
1,2-Dichlorobenzene	100000	105035.5	100000	110141.1	105	110	79-112	5	30
1,3-Dichlorobenzene	100000	99821.5	100000	106544.6	100	107	79-113	7	30
1,4-Dichlorobenzene	100000	103241.2	100000	111756.6	103	112	79-112	8	30
3,3'-Dichlorobenzidine	100000	28356.2	100000	26017.9	28	26	10-104	9	30
2,4-Dichlorophenol	100000	98032.4	100000	105689.8	98	106	81-123	8	30
Diethylphthalate	100000	101024.5	100000	107981.7	101	108	81-118	7	30
2,4-Dimethylphenol	100000	93326.2	100000	101518.9	93	102	83-120	8	30
Dimethylphthalate	100000	99781.8	100000	105915.3	100	106	82-113	6	30

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REVISED

Quality Control Summary

Client Name: Stantec
Reported: 04/11/2017 16:45

Group Number: 1600078

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/kg	LCS Conc ug/kg	LCSD Spike Added ug/kg	LCSD Conc ug/kg	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4,6-Dinitro-2-methylphenol	100000	77894	100000	83106.9	78	83	59-131	6	30
2,4-Dinitrophenol	200000	122141.2	200000	145305.2	61	73	27-140	17	30
2,4-Dinitrotoluene	100000	96781.8	100000	106174.6	97	106	81-122	9	30
2,6-Dinitrotoluene	100000	97194.6	100000	105950.3	97	106	83-120	9	30
bis(2-Ethylhexyl)phthalate	100000	96565.7	100000	100170.4	97	100	81-121	4	30
Fluoranthene	100000	95038.7	100000	100182.1	95	100	81-117	5	30
Fluorene	100000	99729.8	100000	108313.1	100	108	86-118	8	30
Hexachlorobenzene	100000	97069.3	100000	105495.9	97	105	75-123	8	30
Hexachlorobutadiene	100000	95985.3	100000	107030.8	96	107	72-120	11	30
Hexachlorocyclopentadiene	200000	156006.3	200000	170858.7	78	85	68-145	9	30
Hexachloroethane	100000	105327.4	100000	118041.8	105	118*	78-114	11	30
Indeno(1,2,3-cd)pyrene	100000	93285.5	100000	92118.2	93	92	81-118	1	30
Isophorone	100000	91872.1	100000	99210.4	92	99	78-125	8	30
2-Methylnaphthalene	100000	93878.5	100000	101162.2	94	101	83-109	7	30
2-Methylphenol	100000	103134.2	100000	113591.9	103	114	82-125	10	30
4-Methylphenol	100000	98894.2	100000	105479.5	99	105	75-119	6	30
Naphthalene	100000	100189.9	100000	107102.5	100	107	83-112	7	30
2-Nitroaniline	100000	102182	100000	107964.5	102	108	84-126	6	30
3-Nitroaniline	100000	99954	100000	105821.2	100	106	66-119	6	30
4-Nitroaniline	100000	63850.2	100000	65202.3	64	65	50-100	2	30
Nitrobenzene	100000	96981.7	100000	104952.4	97	105	70-122	8	30
2-Nitrophenol	100000	98018.1	100000	106187.9	98	106	83-120	8	30
4-Nitrophenol	100000	88993.4	100000	92736.5	89	93	60-129	4	30
N-Nitroso-di-n-propylamine	100000	88052.4	100000	97255.3	88	97	67-121	10	30
N-Nitrosodiphenylamine	100000	101760.1	100000	106575.9	102	107	83-118	5	30
Di-n-octylphthalate	100000	111900.7	100000	112382.4	112	112	74-146	0	30
Pentachlorophenol	100000	56153.7	100000	65008.2	56*	65	57-126	15	30
Phenanthrene	100000	98929.1	100000	106504.9	99	107	80-114	7	30
Phenol	100000	90170	100000	96541.2	90	97	73-122	7	30
Pyrene	100000	97608.4	100000	104683.1	98	105	81-114	7	30
1,2,4-Trichlorobenzene	100000	93947.8	100000	106444.3	94	106	83-113	12	30
2,4,5-Trichlorophenol	100000	96455.8	100000	104474.9	96	104	86-123	8	30
2,4,6-Trichlorophenol	100000	94382.2	100000	102012.6	94	102	81-123	8	30
	ug/kg	ug/kg	ug/kg	ug/kg					
Batch number: 152900030A	Sample number(s): 8085395								
PCB-1016	20000	24192.95	20000	25640.43	121	128	53-145	6	50
PCB-1260	20000	23299.27	20000	25302.9	116	127	46-160	8	50

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REVISED

Quality Control Summary

Client Name: Stantec
Reported: 04/11/2017 16:45

Group Number: 1600078

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TCL by 8260 (soil)
Batch number: Q152941AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8085395	90	91	85	93
Blank	117	104	94	87
LCS	95	95	93	88
LCSD	94	98	92	86
Limits:	50-141	54-135	52-141	50-131

Analysis Name: TCL 8270 (microwave)
Batch number: 15295SLH026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
8085395	101	107	93	122	98	116
Blank	106	109	112	121	126*	127
LCS	104	109	108	117	121*	122
LCSD	118	122	126	126*	132*	135*
Limits:	58-122	49-134	36-142	54-123	63-117	59-129

Analysis Name: PCBs in Oil
Batch number: 152900030A

	Tetrachloro-m-xylene	Decachlorobiphenyl
8085395	91	82
Blank	106	100
LCS	103	88
LCSD	102	93
Limits:	42-132	63-128

Analysis Name: Quantitative GC Fingerprint
Batch number: 152920017A

	Chlorobenzene	Orthoterphenyl
8085395	90	103
Limits:	50-150	50-150

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Environmental Analysis Request/Chain of Custody

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For Eurofins Lancaster Laboratories Environmental use only

Acct. # 11289 Group # 1600078 Sample # 8085395-98

COC # 389330

Client Information

Client: Stantec	Acct. #:
Project Name/#: Amtrak Wilmington	PWSID #:
Project Manager: Paul Miller	P.O. #: 2134702018
Sampler: Jon Zerbe	Quote #:
State where samples were collected: Delaware	For Compliance: Yes ☐ No ☐

Matrix

Soil ☐ Sediment ☐ Water: Potable ☐ Ground ☐ NPDES ☐ Surface ☐ Other: OIL

Analysis Requested

Preservation Codes

Sample Identification	Collected Date	Collected Time	Grab	Composite	Total # of Containers	PCBs in oil	Quantitative GC fingerprint	VOCs 8260	SVOCs 8270
Product - 10082015	10-8-15	940	X		4	X	X	X	X
Product - MH14	10-8-15	1350	X		2	X	X		

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

Remarks

Turnaround Time (TAT) Requested (please circle)

Standard Rush

(Rush TAT is subject to laboratory approval and surcharge.)

Date results are needed:

E-mail address: Paul.Miller@Stantec.com

Data Package Options (circle if required)

Type I (EPA Level 3 Equivalent/non-CLP) Type VI (Raw Data Only)

Type III (Reduced non-CLP) TX TRRP-13

NYSDEC Category A or B MA MCP CT RCP

Relinquished by	Date	Time	Received by	Date	Time
	10-9-15			10.9.15	1115
	10-9-15	1758			
				10/9/15	1756

EDD Required? Yes No

If yes, format:

Site-Specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate sample volume.)

Relinquished by Commercial Carrier: UPS FedEx Other

Temperature upon receipt 0.4 °C

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	**mg**	milligram(s)
C	degrees Celsius	**mL**	milliliter(s)
cfu	colony forming units	**MPN**	Most Probable Number
CP Units	cobalt-chloroplatinate units	**N.D.**	none detected
F	degrees Fahrenheit	**ng**	nanogram(s)
g	gram(s)	**NTU**	nephelometric turbidity units
IU	International Units	**pg/L**	picogram/liter
kg	kilogram(s)	**RL**	Reporting Limit
L	liter(s)	**TNTC**	Too Numerous To Count
lb.	pound(s)	**µg**	microgram(s)
m3	cubic meter(s)	**µL**	microliter(s)
meq	milliequivalents	**umhos/cm**	micromhos/cm

<	less than
>	greater than
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.
ppb	parts per billion
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

Laboratory Data Qualifiers:

C - Result confirmed by reanalysis
E - Concentration exceeds the calibration range
J (or G, I, X) - estimated value ≥ the Method Detection Limit (MDL or DL) and < the Limit of Quantitation (LOQ or RL)
P - Concentration difference between the primary and confirmation column >40%. The lower result is reported.
U - Analyte was not detected at the value indicated
V - Concentration difference between the primary and confirmation column >100%. The reporting limit is raised due to this disparity and evident interference…
W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods.
Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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